WATER RESOURCES RESEARCH GRANT PROPOSAL

Project ID: 2004NE77B

Title: Low-Cost Flow Estimation for Storm Water Quality BMP Monitoring

Project Type: Research

Focus Categories: Non Point Pollution, Hydrology, Water Quality

Keywords: BMP, Discharge measurements, storm water quality

Start Date: 03/01/2004

End Date: 02/28/2006

Federal Funds: $3,998

Non-Federal Matching Funds: $0

Congressional District: 1

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Abstract

The Environmental Protection Agency (EPA) has implemented a strategy to help reduce pollutants in municipal watersheds. Municipalities with populations of over 10,000 will be required to monitor storm water runoff and to reduce concentrations of specific contaminants over a 10-year period. Monitoring storm water for the contaminants in order to show compliance with the new EPA regulations will be expensive. There is a great need for low-cost methods that municipal public works staff members can use to collect BMP data from a wide range of sites in their communities. In addition, there is a need for low-cost flow monitoring methods for small watersheds where flow data are lacking, often due to inadequate budgets. We propose to investigate the accuracy and cost of a variety of methods for estimating and measuring discharge for water quality measurements. Several methods of flow estimation that utilize hydrologic data and/or stage-discharge relations will be investigated in terms of overall cost and accuracy. The methods will be compared with known discharges and will be tested in field conditions.

The project will include communication with local municipal storm water managers to assess the practicality of implementing each of the methods. By assessing the accuracy and expense of a variety of flow measurement methods, an optimal method (or a list of the most feasible alternatives) will be found for use in BMP flow monitoring. Furthermore, several ideas for reduced-cost stage measurements will be investigated.